



US006079698A

United States Patent [19]

Patterson et al.

[11] Patent Number: **6,079,698**
[45] Date of Patent: **Jun. 27, 2000**

[54] **ISOLATION SYSTEM FOR VIBRATORY EQUIPMENT**

245565 1/1926 United Kingdom 267/33
979443 1/1965 United Kingdom 267/33

[75] Inventors: **Harold E. Patterson**, Indiana; **Paul I. Sleppy**, Penn Run; **Kenneth M. Marshall**, Indiana, all of Pa.

Primary Examiner—Matthew C. Graham
Attorney, Agent, or Firm—Rockey, Milnamow & Katz, Ltd.

[73] Assignee: **FMC Corporation**, Chicago, Ill.

[57] **ABSTRACT**

[21] Appl. No.: **08/912,492**

[22] Filed: **Aug. 18, 1997**

[51] **Int. Cl.⁷** **F16F 3/10**

[52] **U.S. Cl.** **267/33; 267/136**

[58] **Field of Search** 248/638, 619,
248/632, 624, 562; 267/33, 3, 70, 71, 73,
74, 136

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,319,735	5/1943	Hussman	267/135
2,605,099	7/1952	Brown	267/33
3,155,853	11/1964	Spurlin et al.	267/165
3,223,400	12/1965	Deister	267/152
3,762,694	10/1973	MacDonnel	267/3
4,313,535	2/1982	Carmichael	198/766
5,667,202	9/1997	Gwinn	267/33

FOREIGN PATENT DOCUMENTS

623799	8/1961	Italy	267/33
--------	--------	-------	--------

An isolation component for vibratory equipment such as a vibratory trough or feeder includes an isolation spring for supporting the dynamic load of the equipment, and a damper element, preferably an elastomeric ring, arranged against an end of the isolation spring. The damper element prevents excessive motion of the isolation spring due to the vibratory equipment's operating frequency being close to any of the natural frequencies of the bending mode of the isolation spring by applying an opposing load to any such motion. The damper element is preferably an elastomer ring and is arranged along an axis of the support spring. A connector extends from a first end of the isolation spring, adjacent the damper element, toward and past a second end of the isolation spring and is connected to the vibratory equipment. The second end of the isolation spring is supported by a housing supported by external structure such that the weight and dynamic load of the equipment compresses and expands the isolation spring, and excessive expansion of the support spring acts on damper element which is braced against the housing.

19 Claims, 5 Drawing Sheets

